FINAL

CLEAN AIR ACT SECTION 112(r) INSPECTION REPORT
Warneck Pump Station
Watertown, NY

GENERAL INFORMATION

Stationary Source	Warneck Pump Station
Date of Inspection	October 28, 2010
USEPA Inspector	Dwayne Harrington – USEPA, REGION II (Edison, NJ)
Contract Auditor	Neil Mulvey, OHC (Subcontractor)
Description of Activities	• Opening meeting with facility representative. • Program audit. • Closing meeting with facility representatives. Program audit consisted of the following activities: 1. Document review. 2. Field verification. 3. Personnel interviews

STATIONARY SOURCE INFORMATION

EPA Facility ID #	1000 0004 7102
Date of Latest Submission (used for RMP inspection)	Receipt Date: June 23, 2009 (Re-submission) Anniversary Date: June 23, 2014
Facility Location	23557 NYS Route 37 Watertown, NY 13601 Jefferson County Tel. (315) 782-8661
Number of Employees	*RMP*Submit* states 13 employees (per RMP registration)

Description of Surrounding Area	The Warneck Pump Station is located north of Watertown in a rural area. The facility is surrounded by open space, with sparse residential homes located in the general vicinity. The nearest residential home is located approximately 300-ft. to the northeast.
Participants	Participants included representatives from: Dwayne Harrington, USEPA – Region II, Edison, NJ Neil Mulvey, USEPA Contractor Tim Carpenter, P.E., Senior Project Manager – GHD Inc. (Facility Consultant) Greg Ingerson, Lead Operator** – Development Authority of the North Country Steven Marshall, Operator** – Development Authority of the North Country John McCauley, Operator** – Development Authority of the North Country Bryon Perry, General Manager, Water & Wastewater – Development Authority of the North Country * * Lead facility representative ** Hourly employees NOTE: 1. Facility Operators actively participated throughout the entire inspection. 2. The Warneck Pump Station is operated by the Development Authority of the North Country

REGISTRATION INFORMATION

Process ID #	1000010717 – Sewage Treatment
Program Level (as reported in RMP)	Program 3
Process Chemicals	Chlorine @ 8,000-lbs.
NAICS Code	22132 (Sewage Treatment Facilities)

GENERAL COMMENTS

The Warneck Pump Station is operated by the Development Authority of the North Country (DANC), a New York State Authority. The Warneck Pump Station services 25,000-30,000 people, and receives domestic wastewater from local communities and from the U.S. Department of Army's Fort Drum facility. Wastewater is received via gravity flow and is pumped to the Watertown Sewage Treatment Plant. Other than the application of chlorine for odor control, no treatment occurs at the Warneck Pump Station.

The facility uses chlorine from 1-ton containers for odor control by killing bacteria that generates hydrogen sulfide type odors. The chlorine room contains one scale which holds two, 1-ton chlorine containers. Two other 1-ton containers may be stored in the room, equaling the registration quantity of 8,000-lbs. The two 1-ton chlorine containers positioned on the scale are valved open to the feed system. A vacuum pressure regulating valve on the container controls chlorine flow to the feed system. Chlorine gas flows from the container to either of two chlorinators where the flow of chlorine gas is measured prior to injection. From the chlorinators, the chlorine gas flows via flexible polyethylene hose to either of two injectors. The chlorinated water then flows to the wet well. The chlorine room therefore contains:

- Up to four 1-ton chlorine containers (including two on a scale)
- Two chlorinators
- Two injector ports

A chlorine detector is located in the chlorine room with an alarm set point of 2 PPM. If the 2 PPM set point is achieved, the following occurs:

- Local audible alarm and visual alarm lights will activate
- Emergency ventilation in chlorine room automatically starts
- An alarm text message is automatically sent to facility operators
- SCADA (supervisory control and data acquisition) alarm

The facility uses approximately 125 – 155-lbs. per day of chlorine. The facility typically receives three 1-ton chlorine containers per delivery. A delivery is received once every few weeks. The chlorine supplier is Slack Chemical Co., Inc., Carthage, NY

Facility operations began in est. 1988. The facility is managed by a total of seven operators (who also have operational responsibilities for other Development Authority of the North Country facilities). While the facility operates 24/7, operators are only on-site during day shift. Operators are on-call at all other times.

Facility management explained that Authority personnel are first responders in the event of a chlorine release. Chlorine Institute B Kits are on-site for emergency use. Operators received regular training on use of the B Kits.

Important characteristics of chlorine include:

- Greenish-yellow gas with extremely pungent irritating odor
- Exists as a gas at room temperature with a boiling point of -29 ºF
- Considered a dense gas (weighs 2.5 times as much as air)
- Non-explosive or flammable
- IDLH is 10 PPM

RMP DOCUMENTATION

RMP documents (i.e., programs and procedures) are contained in a "Process Safety Management and Risk Management Plan Manual" (e.g., PSM/RMP Manual) prepared by GHD Inc. for DANC's Warneck Pump Station. The PSM/RMP Manual was last updated in October 2010. The Manual was updated to address findings identified during a recent USEPA RMP inspection of the Warneck Wastewater Treatment facility. The PSM/RMP Manual is organized by RMP program element.

The facility also maintains a Safety Manual, as well as other files and records indicating implementation of required programs, such as operator training.

Management System [*40 CFR 68.15*] & Registration

Mr. Bryon Perry, General Manager, is the designated RMP responsible manager and emergency contact. This designation is consistent with the *RMP*Submit* registration.

Documentation includes a written description of the management system. The Lead Operator and Operators are responsible for daily operation of the chlorine process. Facility management demonstrated a good understanding of RMP. Documentation was well organized and readily available for review.

Hazard Assessment [*40 CFR 68.22*]

The nearest residence is approximately 0.1 mile from the facility. The facility used EPA Guidance Tables for chlorine to determine their Worst and Alternative Case Off-Site Consequence Analysis (OCA). Using the scenario descriptions and assumptions and parameter inputs to the models (i.e., 2,000 pound release of chlorine in ten minutes in an enclosed facility, over a rural topography), EPA could not validate the Distance to Endpoint result that was submitted in the RMP for the Worst Case Scenario. The facility must review their OCA analysis for both Worst and Alternative Case Scenarios and correct their RMP submission, or provide a step by step explanation showing how the Distance to Endpoint figures were computed.

The facility estimated their OCA population impact by dividing the surface area of their OCA plots by the square mileage of Jefferson County, and multiplying by the total number of people living in Jefferson County according to 2000 census data. Using

county-wide population data rather than local population data immediate to the facility is too general a method and a more accurate method is required.

EPA uses LandView6 software to determine population data from the 2000 census. While it is not required that RMP OCAs be computed using LandView software, 40CFR68.30(d) requires a level of accuracy estimate to two significant digits. LandView6 software is described, including links to purchasing information and population estimators, at: http://www.census.gov/geo/landview/. This website explains how the LandView6 software interfaces with Marplot software to display maps of the vulnerability zone. Marplot software can be downloaded for free at: http://www.epa.gov/OEM/cameo/marplot.htm.

The RMP must be resubmitted to EPA with accurate population and Distance to Endpoint data.

Process Safety Information (PSI) [*40 CFR 68.65*]

PSI available for review includes information on the hazards of chlorine and information on the technology of the chlorine process, including:

- Process chemistry
- Block flow diagram
- Safe upper and lower operating limits
- Evaluation of the consequences of deviation

A piping and instrument diagram (P&ID) of the chlorine process was available for review. The P&ID however was not dated.

Detailed vendor information (e.g., Operations & Maintenance Manuals) was also available for the chlorine detector, vacuum pressure regulator, and chlorinators.

The following PSI relative to equipment in the process was not available for review:

- Electrical area classification designations
- Basis for relief system design
- Ventilation system design relative to the chlorine room
- List of design codes and standards employed
- Description of safety systems, specific to the Warneck Pump Station

- Additionally, there was no documentation that the equipment used in the process complies with recognized and generally accepted good engineering practices

Process Hazard Analysis (PHA) [*40 CFR 68.67*]

The most recent PHA was conducted on 9/14/10. The PHA was a checklist review led by an outside consultant (GHD Inc.). The team included the General Manager and facility

Operators. Four recommendations were identified and resolved. Documentation available for review includes a report of the 9/14/10 PHA checklist review and documentation on the resolution of the recommendations.

The other PHA available for review was performed in 1999. A "What-If/Checklist" method was used. No recommendations were identified and there is no record of who participated.

- There is no record of a PHA performed in 2005, as required per the five-year revalidation.

Standard Operating Procedures (SOPs) [*40 CFR 68.69*]

A single Standard Operating Procedure – Chlorine System, Rev. 3, 10/25/10 is written for the system. This SOP includes procedures for all applicable operating phases, as well as a description of operating limits, safety and health considerations, and safety system.

The Safety Manual (dated 6/10/10) contains procedures for safe work practices, including confined space entry, lock-out/tag-out, and respiratory protection.

Training [*40 CFR 68.71*]

A written description of initial and refresher operator training was available for review. Reviewed documentation of initial operator training for the following employees:

- Bryon Perry – 8/25/06
- John Wall – 8/25/06
- John McCauley – 6/8/07

Documentation included a checklist of topics covered, instructor, and dates of training. Training includes a review of the Standard Operating Procedure – Chlorine System, Rev. 3, 10/25/10.

The last new operator hired at the facility was over five-years ago.

Refresher training was last performed on 6/30/10. Documentation includes a list of items/topics reviewed during refresher training and a written exam. Documentation also included records of refresher training conducted on 7/20/09 and in 2008.

Mechanical Integrity [*40 CFR 68.73*]

The facility performs monthly inspections including the overhead and gantry crane and of equipment in the chlorine process. An outside equipment vendor (Severn Trent) performs an annual inspection of the chlorine process. Documentation of this annual inspection, however, only includes an invoice for the services rendered and list of spare parts replaced.

The mechanical integrity program does not include:

- Equipment inspection procedures describing what constitutes an acceptable inspection and how deficiencies are identified and recordkeeping; applicable to both in-house inspections as well as inspections performed by Severn Trent (outside equipment vendor).
- Established basis for the type and frequency of inspections and tests.

EPA: subsequent to the inspection, the facility provided chlorine system inspection procedures.

Management of Change (MOC) [*40 CFR 68.75*] & Pre-Startup Review (PSR) [*40 CFR 68.77*]

While there are no written MOC or PSR procedures, the facility does have forms for documenting such reviews. Facility management reported that there have been no changes to the chlorine process requiring an MOC or PSR review, so there were no files for review.

Compliance Audits [*40 CFR 68.79*]

The most recent RMP compliance audit was conducted on 9/14/10 by an outside consultant (GHD Inc.). Facility personnel participated. The USEPA RMP Checklist was used during the audit, which was conducted in direct response to the recent USEPA RMP inspection of the Warneck Wastewater Treatment facility. Nine action items were identified. Documentation included written status / resolution of all audit action items.

Prior RMP compliance audits were conducted on 6/13/08 and 9/21/05. Documentation lacked detail and only included very general statements that all RMP programs / procedures were current.

Incident Investigation [*40 CFR 68.81*]

The Safety Manual (dated 6/10/10) contains a written incident investigation procedure, including a form for documenting such investigations. Facility management reported that there have been no chlorine incidents / releases requiring an investigation.

Employee Participation [*40 CFR 68.83*]

Documentation includes a written statement that employee (hourly/salary) are involved in the conduct and development of the PHA and other RMP elements. It is apparent from employee interviews and discussions that plant operators are well informed of the facility's process risk management program. Employees are active in reviewing and updating RMP procedures.

Operators Greg Ingerson, Steven Marshall, and John McCauley participated in the inspection.

Hot Work Permit [*40 CFR 68.85*]

The Safety Manual (dated on 6/10/10) contains a written hot work permit procedure, including a form for documenting and authorizing hot work. Reviewed completed HWP forms for hot work performed on 9/29/10, 9/9/10, and 8/4/10; documentation and authorizations found to be in order (note this hot work was not performed on or near the chlorine process).

Contractor Safety [*40 CFR 68.87*]

The facility has a written contractor safety procedure including requirements to review contractor qualifications prior to hiring a contractor for on-site work and procedures for contractor orientation. The procedure includes a checklist review of contractor work performance while on-site. Documentation includes contractor review, contractor orientation, and checklist review of work performed by Severn Trent related to performing annual inspections.

Emergency Response [*40 CFR 68.90 – 68.95*]

The facility does not maintain an internal hazmat response team for chlorine releases. The facility coordinates with local emergency services and hazmat for emergency response to incidents at the plant.

FACILITY TOUR

Several items noted during the facility tour include:

- General housekeeping was good.

- A field check of the chlorine process P&ID identified several inconsistencies between the drawing and field installation, including a manual valve at the inlet of one of the chlorinators and a vacuum gauge at the outlet of the chlorinator that are missing from the P&ID. **The facility must ensure that accurate and representative P&IDs are available as process safety information, as required by 40 CFR 68.65(d)(1)(ii).**

- The vacuum regulator relief vent discharges external to the Chlorine Room, but directly above a personnel walkway and external staircase, potentially exposing employees or other responder to chlorine in the event of relief. **The facility must evaluate this design and consider re-routing the relief vent discharge; reference: *Pamphlet 6 - Piping Systems for Dry Chlorine*, The Chlorine Institute (Edition 15, May 2005); Section 5.2 states that "PRVs should be adequately sized and piped such that discharge is unrestricted and is exhausted to a safe location."**

- Chlorine transfer lines in the Chlorine Room are not labeled or otherwise identified. **The facility must label or otherwise identify the chlorine lines in the Chlorine Room, consistent with *Pamphlet 6 - Piping Systems for Dry Chlorine,* The Chlorine Institute (Edition 15, May 2005); Section 10.0 which states that chlorine lines should be readily identifiable.**

FINDINGS/RECOMMENDATIONS

Hazard Assessment [*40 CFR 68.22*]

EPA could not validate the Distance to Endpoint result that was submitted in the RMP for the Worst Case Scenario. Also, the methodology used to compute potential population impact was not sufficiently accurate.

The facility must review and revise their OCA analysis for both Worst and Alternative Case Scenarios or provide a step by step explanation showing how the Distance to Endpoint figures were computed. In addition, the facility must revise their OCA to reflect accurate local population data. The RMP must be resubmitted to EPA with accurate population and Distance to Endpoint data.

Process Safety Information (PSI) [*40 CFR 68.65*]

- PSI did not include the following information regarding equipment in the process:

  - Electrical area classification designations
  - Basis for relief system design
  - Ventilation system design relative to the chlorine room
  - List of design codes and standards employed
  - Description of safety systems, specific to the Warneck Pump Station

  The facility must develop information describing the equipment in the process, as required by 40 CFR 68.65(d)(1).

- PSI did not include documentation that equipment utilized in the process complies with recognized and generally accepted good engineering practices. **The facility must evaluate and document that equipment utilized in the regulated process complies with recognized and generally accepted good engineering practices, as required by 40 CFR 68.65(d)(2).**

Process Hazard Analysis (PHA) [*40 CFR 68.67*]

- There is no record of a PHA performed in 2005, as required per the five-year revalidation. **The facility must ensure that the PHA is revalidation at lease once every five-years, as required by 40 CFR 68.67(f).**

Mechanical Integrity [*40 CFR 68.73*]

- The mechanical integrity program does not include:

  - Equipment inspection procedures describing what constitutes an acceptable inspection and how deficiencies are identified and recordkeeping; applicable to both in-house inspections as well as inspections performed by Severn Trent (outside equipment vendor).
  - Established basis for the type and frequency of inspections and tests.

  The facility must ensure that written procedures to maintain the ongoing integrity of the process equipment are developed, as required by 40 CFR 68.73(b), and inspections and tests performed and their frequencies follow recognized and generally accepted good engineering practices, as required by 40 CFR 68.73(d)(2) and (3).

- A field check of the chlorine process P&ID identified several inconsistencies between the drawing and field installation, including a manual valve at the inlet of one of the chlorinators and a vacuum gauge at the outlet of the chlorinator that are missing from the P&ID. **The facility must ensure that accurate and representative P&IDs are available as process safety information, as required by 40 CFR 68.65(d)(1)(ii).**

- The vacuum regulator relief vent discharges external to the Chlorine Room, but directly above a personnel walkway and external staircase, potentially exposing employees or other responder to chlorine in the event of relief. **The facility must evaluate this design and consider re-routing the relief vent discharge; reference: *Pamphlet 6 - Piping Systems for Dry Chlorine*, The Chlorine Institute (Edition 15, May 2005); Section 5.2 states that "PRVs should be adequately sized and piped such that discharge is unrestricted and is exhausted to a safe location."**

- Chlorine transfer lines in the Chlorine Room are not labeled or otherwise identified. **The facility must label or otherwise identify the chlorine lines in the Chlorine Room, consistent with *Pamphlet 6 - Piping Systems for Dry Chlorine,* The Chlorine Institute (Edition 15, May 2005); Section 10.0 which states that chlorine lines should be readily identifiable.**